

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AT2004/000442

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 6-11 as originally filed/furnished
- pages* 1-5, 5a received by this Authority on 08.07.2005 with letter of 05.07.2005
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-12 received by this Authority on 08.07.2005 with letter of 05.07.2005
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/5-5/5 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Inventive step (IS)	Claims <u>1-12</u>	YES
		Claims _____	NO
	Industrial applicability (IA)	Claims <u>1-12</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	Reference is made to the following documents:		
	D1: US-A-4 687 573 (MILLER ET AL) 18 August 1987 (1987-08-18)		
	D2: PATENT ABSTRACTS OF JAPAN, vol. 011, no. 063 (C-406), 26 February 1987 (1987-02-26) & JP 61 222523 A (P S KANKYO GIKEN KK), 3 October 1986 (1986-10-03)		
	D3: PATENT ABSTRACTS OF JAPAN, vol. 007, no. 011 (C-145), 18 January 1983 (1983-01-18) & JP 57 167718 A (NOBUKO TAMAOKI; others: 01), 15 October 1982 (1982-10-15)		
	D4: US-A-4 711 097 (BESIK ET AL) 8 December 1987 (1987-12-08).		
	Document D1 is considered to be the prior art closest to the subject matter of claim 1. Said document discloses all the features of the preamble of claim 1 (the references in brackets are to document D1):		
	D1 discloses a sorption element for a sorption-based air-conditioning unit for the dehumidification (see column 1, lines 17-19) of a space or an airflow, the		
	/...		

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

sorption element being in the form of a tubular part (62) having a tubular cross section and a first open end and an opposing second open end (see figure 2), the first open end being delimited by a first air-permeable grating element (78; see figure 1 and column 9, line 29) and the second open end being delimited by a second air-permeable grating element (80; see also figure 2 and column 9, line 30), the grating elements being impermeable to a sorbent.

The subject matter of claim 1 therefore differs from the known sorption element in that the sorbent (3) is in the form of a granular bed, the sorbent (3) being distributed to a depth (31) that is less than the length (15) of the sorption element (1) in such a way that the sorbent (3) can be fluidised or vortexed by means of an airflow, in particular from below.

Thus, the subject matter of claim 1 is novel (PCT Article 33(2)).

The problem addressed by the present invention can consequently be regarded as that of improving the transfer of heat and mass.

The solution to the above problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)). The reasons are as follows:

in the light of the disclosure in the characterising part of claim 1, there is a far greater possibility of turbulence on the effective surface of the sorption medium.

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No such arrangement of the sorption agent, as a granular bed, is known from the available prior art nor can it be derived therefrom without inventive input. D1 proposes the use of a polymeric binding agent to solidify the sorption agent. This is also proposed in documents D2, D3 and D4.

Therefore, in view of the fact that the granular material can be fluidised or vortexed, a loose granular bed as proposed in claim 1 cannot be considered to have been disclosed in the prior art citations or rendered obvious thereby.

Claims 2 to 9 are dependent on claim 1 and, in consequence, likewise satisfy the requirements of the PCT in respect of novelty and inventive step. Claims 10 to 12 relate to a method for a sorption-based air-conditioning unit for the dehumidification and/or heating and/or cooling of a space or of an airflow, using a sorption element (1) as per one of claims 1 to 7 - optionally with a sorption system as per claim 8 or 9 - and, thus, likewise satisfy the requirements of the PCT in respect of novelty and inventive step.